August 18, 2004

World Intellectual Property Organization
PCT Division
34 Chemin des Colombettes
1211 Geneva 20
Switzerland

Amendment of the claims under Article 19(1) (Rule 46)

Re: International Application No. PCT/JP2004/003689
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Agent Ref.: PH-2061-PCT

Dear Sirs,

The Applicant, who received the International Search Report relating to the above-identified International application transmitted on July 6, 2004, hereby files amendment under Article 19(1) as in the attached sheets.

Further, the Applicant hereby attaches new Sheet No. 18and 19 because the intended amendment results in the amendment to the claim therein. Thus claims 1, 2, 5 and 7 are retained unchanged, claims 3, 4, 6 and 8 are amended.

The applicant also files as attached herewith a brief statement explaining the amendment and indicating any impact that amendment therein might have on the description and drawings.

Very truly yours,

Yusuke Hiraki

Yusuke HIRAKI
YH/KI/yy

Encl. (1) Amendment under Article 19(1) 2 sheet
(2) Brief Statement 1 sheet

PH-2061PCT (Article 19 Amendment)

AMENDED CLAIMS

[Accepted by the International Bureau on August 18, 2004 (18. 08. 04): Claims 3, 4, 6, and 8 as originally field have been amended; other claims remain unchanged.]

1. A crystal growing method comprising the steps of:

forming a step-terrace structure on a SiC surface and then removing an oxide film on the surface; and

performing at least one cycle of a process of emitting Si or Ga under high vacuum and then heating, and then growing a Group-III nitride.

2. The crystal growing method according to claim 1, wherein the step of growing a Group-III nitride is performed at a temperature lower than the temperature of the substrate during the heating step.

3. (Amended) A crystal growing method comprising the steps of:

removing an oxide film on a surface and forming a flat and clean SiC surface; and

growing a Group-III nitride under high vacuum, wherein a Group III element is fed before nitrogen is fed.

4. (Amended) A crystal growing method comprising the steps of:

removing an oxide film on a surface and forming a flat and clean SiC surface;

growing a Group-III nitride under high vacuum, wherein a surface control element for controlling the mode of crystal growth of said Group-III nitride on the SiC surface is fed first; and

feeding a Group III element and nitrogen, followed by the termination of the feeding of said surface control element.

5. The crystal growing method according to claim 4, wherein said surafce control element is Ga or In.

6. (Amended) A crystal growing method comprising the steps of:

controlling a SiC surface to acquire a step-terrace structure; and

removing an oxide film on the surface using a solution containing fluorine in an atmosphere of reduced oxygen partial pressure, and then growing a Group-III nitride.

7. The crystal growing method according to any one of claims 1 to 6, wherein said SiC surface has an offset angle of 0 to 15° with respect to the (0001) Si or (000–1) C plane.

8. A stacked structure comprising:

an SiC layer;

an AlN layer; and

Ga atoms or In atoms remaining between said SiC layer and said AlN layer.

STATEMENT UNDER ARTICLE 19

(1) In claims 3 and 4, it has been clarified that there is provided the step of removing an oxide film on the surface when a flat and clean SiC surface is formed. In the specification, it is described that: "Then, as shown in Fig. 1(B), the surface of the SiC substrate 1 taken out into the atmosphere was treated with aqua regia, hydrochloric acid, and hydrofluoric acid sequentially. By the hydrofluoric acid process, a minute amount of silicon oxide film formed on the surface of the SiC substrate 1 can be removed. On the surface of the substrate, there is formed a clean surface 3 of SiC..." (page 7, 1st line from bottom, to page 8, line 5).

(2) In claim 6, it has been clarified that the step of removing the oxide film on the surface is performed using a solution containing fluorine. In the specification, it is described that: "As shown in Fig. 9(B), the surface 43 of a SiC substrate 41 is cleaned with an aqueous solution containing hydrofluoric acid. The SiC substrate 41 is then introduced into a MBE sample introducing portion without coming into contact with oxygen, and the portion is evacuated to a high degree. Then, as shown in Fig. 9(C), under a high vacuum ($P = 10^{-6}$ to 10^{-8} Pa) within the MBE apparatus, as in the crystal growing methods according to the foregoing embodiments, an AlN film 51 is grown..." (page 16, 16th line from bottom, to page 17, line 1)

(3) In claim 8, the Group-III nitride has been limited to AlN. It is described that, when an AlN layer is formed on the SiC layer, a Ga atom beam is shone prior to the formation of the AlN layer (Fig. 1, pages 8-15, and page 16, line 3).